AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for calculating signal-to-interference ratio (SIR) of a mobile device in a wireless communication system, the method comprising ~~the steps of~~:

~~non-coherently~~ processing a communication signal transmitted by the mobile device to obtain a total power estimate of combined signal plus noise, the step of processing including calculating a slot energy signal using a number of signal values of the communication signal and a number of pilot symbols;

estimating interference power of the communication signal, the step of estimating including examining squared differences between values relating to adjacent pilot symbols;

scaling the estimated interference power and/or the total power estimate;

subtracting the estimated interference power or the scaled estimated interference power from the ~~processed communication signal~~total power estimate or the scaled total power estimate to thereby estimate signal power; and

calculating the SIR by dividing the estimated signal power by the estimated interference power.

2. (Currently Amended) The method of claim 1, wherein the step of ~~non-coherently~~ processing includes ~~the steps of~~:

multiplying a portion of the communication signal by a pilot symbol sequence in each finger of a receiver to produce a respective multiplied signal;

calculating an average of the multiplied signal over a length of the pilot symbol sequence in each of the fingers of the receiver;

squaring the respective averages in the fingers of the receiver; and

adding the squares of the fingers of the receiver.

3. (Original) The method of claim 1, wherein signal power is estimated based on pilot symbols and any one or more of TPC, TFCI, and FBI symbols.

4. (Original) The method of claim 1, wherein the interference power is estimated based on pilot symbols and TPC symbols.

5. (Currently Amended) The method of claim 1, wherein the step of estimating the interference power includes a step of calculating a difference ~~between adjacent~~between values relating to adjacent symbols.

6. (Currently Amended) The method of claim 5, wherein the step of estimating the interference power includes a step of calculating a square of the difference ~~between adjacent~~between values relating to adjacent symbols.

7. (Original) The method of claim 5, wherein the step of estimating the interference power includes a step of high-pass filtering symbols.

8. (Currently Amended) In a wireless communication system having a base station and a mobile device, a method for adjusting power settings of the mobile device comprising ~~the steps of~~:

calculating signal-to-interference ratio (SIR) of communication signals transmitted to the base station by the mobile device, the calculating step including:

~~non-coherently~~ processing a communication signal transmitted by the mobile device, to obtain a total power estimate of combined signal plus noise, the step

of processing including calculating a slot energy signal using a number of signal values of the communication signal and a number of pilot symbols;

estimating interference power of the communication signal, the step of estimating including examining squared differences between values relating to adjacent pilot symbols;

scaling the estimated interference power and/or the total power estimate;

subtracting the estimated interference power or the scaled estimated interference power from the ~~processed communication signal~~ total power estimate or the scaled total power estimate to thereby estimate signal power; and

calculating the SIR by dividing the estimated signal power by the estimated interference power;

comparing the calculated SIR with a target SIR to thereby generate a power control signal;

transmitting the power control signal from the base station to the mobile phone; and

adjusting the power of the communication signals transmitted by the mobile phone based on the power control signal.

9. (Original) The system of claim 8, wherein signal power is estimated based on pilot symbols and any one or more of TPC, TFCI, and FBI symbols.

10. (Original) The system of claim 8, wherein the interference power is estimated based on pilot symbols and TPC symbols.

11. (Currently Amended) The system of claim 8, wherein the step of estimating the interference power includes a step of calculating a difference ~~between adjacent~~between values relating to adjacent symbols.

12. (Currently Amended) The system of claim 11, wherein the step of estimating the interference power includes a step of calculating a square of the difference ~~between adjacent~~between values relating to adjacent symbols.

13. (Currently Amended) A system for calculating signal-to-interference ratio (SIR) comprising:

means for ~~non-coherently~~ processing a communication signal transmitted by the mobile device to obtain a total power estimate of combined signal plus noise, the step of processing including calculating a slot energy signal using a number of signal values of the communication signal and a number of pilot symbols;

means for estimating interference power of the communication signal including examining squared differences between values relating to adjacent pilot symbols;

means for scaling the estimated interference power and/or the total power estimate;

means for subtracting the estimated interference power or the scaled estimated interference power from the ~~processed communication signal~~ total power estimate or the scaled total power estimate to thereby estimate signal power; and

means for calculating the SIR by dividing the estimated signal power by the estimated interference power.

14. (Currently Amended) The system of claim 13, wherein the means for ~~non-coherently~~ processing comprises:

means for multiplying a portion of the communication signal by a pilot symbol sequence in each finger of a receiver to produce a respective multiplied signal;

means for calculating an average of the multiplied signal over a length of the pilot symbol sequence in each of the fingers of the receiver;

means for squaring the respective averages in the fingers of the receiver; and

means for adding the squares of the fingers of the receiver.

15. (Original) The system of claim 13, wherein signal power is estimated based on pilot symbols and any one or more of TPC, TFCI, and FBI symbols.

16. (Original) The system of claim 13, wherein the interference power is estimated based on pilot symbols and TPC symbols.

17. (Currently Amended) The system of claim 13, wherein the means for estimating the interference power is communicatively coupled with a means for calculating a difference ~~between adjacent~~between values relating to adjacent symbols.

18. (Currently Amended) The system of claim 17, wherein the means for estimating the interference power is communicatively coupled with a means for calculating a square of the difference ~~between adjacent~~between values relating to adjacent symbols.

19. (Currently Amended) A wireless communication system, having a base station and a mobile device, for providing power control of communication signals transmitted by the mobile device comprising:

means for calculating signal-to-interference ratio (SIR) of the communication signals transmitted to the base station by the mobile device, the calculating means comprising:

means for ~~non-coherently~~ processing a communication signal transmitted by the mobile device to obtain a total power estimate of combined signal plus noise, the step of processing including calculating a slot energy signal using a number of signal values of the communication signal and a number of pilot symbols;

means for estimating interference power of the communication signal including examining squared differences between values relating to adjacent pilot symbols;

means for calculating a scaled estimated interference power and/or a scaled total power estimate;

means for subtracting the estimated interference power or the scaled estimated interference power from the ~~processed communication signal~~ total power estimate or the scaled total power estimate to thereby estimate signal power; and

means for calculating the SIR by dividing the estimated signal power by the estimated interference power;

means for comparing the calculated SIR with a target SIR to thereby generate power control signals;

means for transmitting the power control signals from the base station to the mobile phone; and

means for adjusting power of the communication signals transmitted by the mobile phone based on the power control signals.

20. (Original) The system of claim 19, wherein signal power is estimated based on pilot symbols and any one or more of TPC, TFCI, and FBI symbols.

21. (Original) The system of claim 19, wherein the interference power is estimated based on pilot symbols and TPC symbols.

22. (Currently Amended) A wireless communication system having a base station and a mobile device, comprising:

a processor;

a memory communicatively coupled to the processor;

software executing in the processor configured to:

~~non-coherently~~ process a communication signal transmitted by the mobile device to obtain a total power estimate of combined signal plus noise, the step of processing including calculating a slot energy signal using a number of signal values of the communication signal and a number of pilot symbols;

store the processed communication signal in the memory;

estimate interference power of the communication signal, including examining squared differences between values relating to adjacent pilot symbols;

store the estimated interference power in the memory;

scale the estimated interference power and/or the total power estimate;

store the scaled estimated interference power;

subtract the estimated interference power or the scaled estimated interference power from the ~~processed communication signal~~ total power estimate or the scaled total power estimate to thereby estimate signal power;

store the scaled estimated signal power in the memory; and

calculate the SIR by dividing the estimated signal power by the estimated interference power.

23. (Currently Amended) A wireless communication system having a base station and a mobile device, comprising:

a processor;

a memory communicatively coupled to the processor;

software executing in the processor configured to:

~~non-coherently~~ process a communication signal transmitted by the mobile device to obtain a total power estimate of combined signal plus noise, the step of processing including calculating a slot energy signal using a number of signal values of the communication signal and a number of pilot symbols;

store the processed communication signal in the memory;

estimate interference power of the communication signal including examining squared differences between values relating to adjacent pilot symbols;

store the estimated interference power in the memory;

scale the estimated interference power and/or the total power estimate;

store the estimated interference power or the scaled estimated interference power;

subtract the scaled estimated interference power from the ~~processed communication signal~~ total power estimate or the scaled total power estimate to thereby estimate signal power;

store the estimated signal power in the memory; and

calculate the SIR by dividing the estimated signal power by the estimated interference power;

store the calculated SIR in the memory;

compare the calculated SIR with a target SIR, which is stored in the memory, to thereby generate a power control signal;

transmit the power control signal from the base station to the mobile phone; and

adjust power of the communication signals transmitted by the mobile phone based on the power control signal.

24. (New) A method for calculating signal-to-interference ratio (SIR) of a mobile device in a wireless communication system, the method comprising the steps of:

non-coherently processing a communication signal transmitted by the mobile device;

estimating interference power of the communication signal;

scaling the estimated interference power or the processed communication signal;

subtracting the estimated interference power or the scaled estimated interference power from the processed communication signal or scaled processed communication signal to thereby estimate signal power; and

calculating the SIR by dividing the estimated signal power by the estimated interference power,

wherein the step of non-coherently processing includes the steps of:

multiplying a portion of the communication signal by a pilot symbol sequence in each finger of a receiver to produce a respective multiplied signal;

calculating an average of the multiplied signal over a length of the pilot symbol sequence in each of the fingers of the receiver;

squaring the respective averages in the fingers of the receiver; and

adding the squares of the fingers of the receiver.

25. (New) A system for calculating signal-to-interference ratio (SIR) comprising:

means for non-coherently processing a communication signal transmitted by the mobile device;

means for estimating interference power of the communication signal;

means for scaling the estimated interference power or the processed communication signal;

means for subtracting the estimated interference power or the scaled estimated interference power from the processed communication signal or scaled processed communication signal to thereby estimate signal power; and

means for calculating the SIR by dividing the estimated signal power by the estimated interference power,

wherein the means for non-coherently processing comprises:

means for multiplying a portion of the communication signal by a pilot symbol sequence in each finger of a receiver to produce a respective multiplied signal;

means for calculating an average of the multiplied signal over a length of the pilot symbol sequence in each of the fingers of the receiver;

means for squaring the respective averages in the fingers of the receiver; and

means for adding the squares of the fingers of the receiver.

26. (New) The method of claim 1, wherein the step of estimating includes multiplying a number of signal values of the communication signal by a number of conjugate complex pilot symbols, and summing multiplication results to obtain a multiplication result sum.

27. (New) The method of claim 1, wherein the step of estimating includes multiplying a number of signal values of the communication signal by a number of

conjugate complex pilot symbols, calculating differences between multiplication results having a neighboring pilot symbol index, and summing squared differences to obtain a difference sum.

28. (New) The method of claim 26, wherein the step of estimating includes multiplying a number of signal values of the communication signal by a number of conjugate complex pilot symbols, calculating differences between multiplication results having a neighboring pilot symbol index, and summing squared differences to obtain a difference sum, and

wherein the step of scaling is performed so that the multiplication result sum and the difference sum are related to the same number of pilot symbols.

29. (New) The method of claim 1, wherein the step of processing includes using the following equation:

$$\hat{E}_s = \sum_{l=1}^{L} \left\| \frac{1}{N} \sum_{i=1}^{N} y_{i,l} x_i^* \right\|^2 ,$$

wherein $\hat{E}_s$ is the total power estimate, x_i is a pilot symbol, $y_{i,l}$ is a value of the communication signal, N is the number of pilot symbols, and L is the number of locked fingers of a finger receiver.

30. (New) The method of claim 1, wherein the step of estimating interference power includes using the following equation:

$$\hat{I}_s = \frac{1}{2(N-1)L}\sum_{l=1}^{L}\sum_{i=1}^{N-1}\left(y_{i,l}x_i^* - y_{i+1,l}x_{i+1}^*\right)^2 ,$$

wherein $\hat{I}_s$ is the interference power, x_i is a pilot symbol, $y_{i,l}$ is a value of the communication signal, x_{i+1} is a neighboring pilot symbol, $y_{i,l+1}$ is a neighboring value of the communication signal, N is the number of pilot symbols, and L is the number of locked fingers of a finger receiver.